

TRAFFIC SPEED STUDIES

PROGRESS REPORT NO. 72

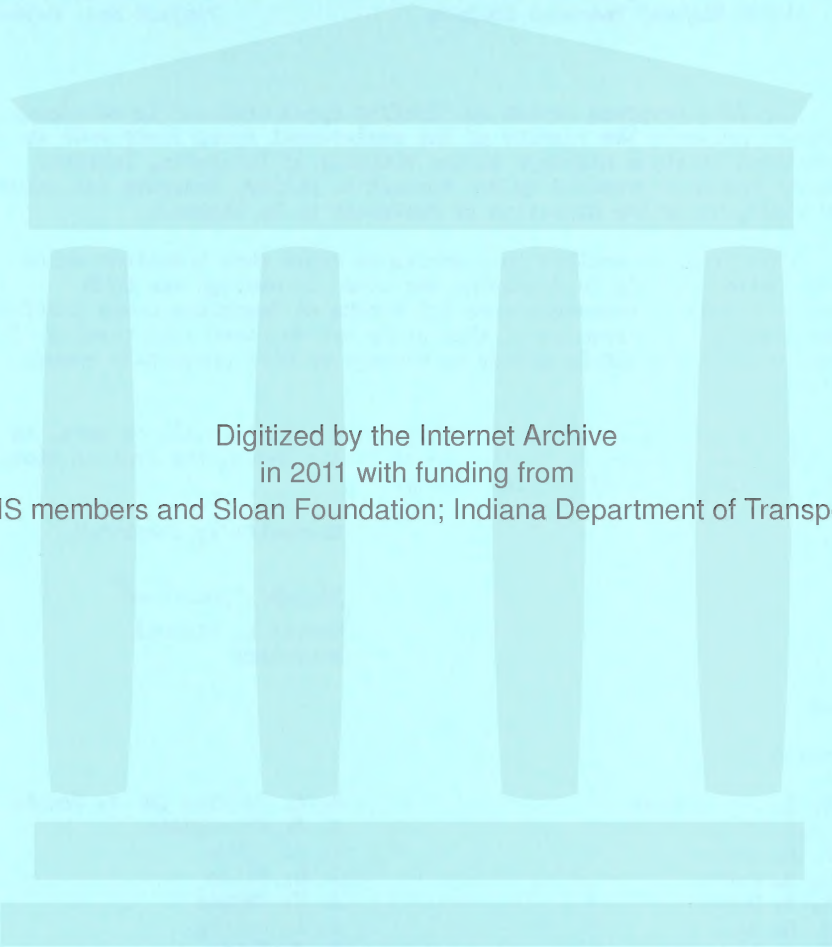
JUNE, 1961

NO. 14

Joint  
Highway  
Research  
Project

by  
F.D. MILLER

PURDUE UNIVERSITY  
LAFAYETTE INDIANA



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Progress Report

TRAFFIC SPEED STUDIES  
PROGRESS REPORT NO. 72

TO: E. B. Woods, Director  
Joint Highway Research Project

FROM: H. L. Michael, Assistant Director  
Joint Highway Research Project

June 21, 1961

File No: 8-3-3  
Project No: C-36-100

The 72nd progress report on "Traffic Speed Studies" is attached. This report presents the results of the semi-annual speed study made at six locations on state highways in the vicinity of Lafayette, Indiana. The report has been prepared by Mr. Forrest D. Miller, Graduate Assistant on our staff, under the direction of Professor H. L. Michael.

This study is another in a series at these same locations which are made twice annually to determine the trend in average and 85th percentile speeds of passenger cars and trucks at locations where traffic is free-flowing. The results of this study are compared with results of previous studies and little change in average or 85th percentile speeds was noted.

The report is presented for the record. Copies will be sent, as usual for these studies, to the Bureau of Public Roads, the Indiana State Police, and the Office of Traffic Safety.

Respectfully submitted,

*Harold L. Michael*  
Harold L. Michael  
Secretary

HLM:kmc

Attachment

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June 21, 1961

PROGRESS REPORT NO. 72  
 PLANTIC RESEARCH STUDIES  
 Progress Report

TO: E. A. Mendenhall, Director  
 Johns Hopkins University  
 FROM: R. L. Mendenhall, Assistant Director  
 Johns Hopkins University  
 Date: June 11, 1961  
 File No: 6-1-6  
 Project No: 6-1-6-112

The first report in this series, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1958. This report was the first of a series of reports on the role of the plant in the development of the human brain. The second report, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1959. This report was the second of a series of reports on the role of the plant in the development of the human brain. The third report, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1960. This report was the third of a series of reports on the role of the plant in the development of the human brain.

The fourth report in this series, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1961. This report was the fourth of a series of reports on the role of the plant in the development of the human brain. The fifth report, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1962. This report was the fifth of a series of reports on the role of the plant in the development of the human brain. The sixth report, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1963. This report was the sixth of a series of reports on the role of the plant in the development of the human brain.

The seventh report in this series, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1964. This report was the seventh of a series of reports on the role of the plant in the development of the human brain. The eighth report, "The Role of the Plant in the Development of the Human Brain," was published in the Journal of the American Academy of Child and Adolescent Psychiatry in 1965. This report was the eighth of a series of reports on the role of the plant in the development of the human brain.

Respectfully,  
 R. L. Mendenhall

Enclosure  
 R. L. Mendenhall  
 Assistant Director

11/11/61

11/11/61

- |                     |                     |
|---------------------|---------------------|
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Progress Report

TRAFFIC SPEED STUDIES

Progress Report No. 72

by

Forrest Miller  
Graduate Assistant

Joint Highway Research Project

File: 8-3-3

Project: C-36-10C

Purdue University  
Lafayette, Indiana

June 21, 1961



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## TRAFFIC SPEED REPORT NO. 72

This report covers spot speed observations made during March and April 1961. All observations were made of free moving vehicles on level tangent sections of rural highways. The locations of the stations were the same as for previous studies and are as follows:

1. U.S. 52 - 1.0 mile south of south junction of S.R. 28  
(4-lane highway)
2. U.S. 52 - 1.0 mile west of Klondike (4-lane highway)
3. U.S. 52 - 2.2 miles northwest of Templeton (2-lane highway)
4. U.S. 31 - 7.2 miles north of Perrysburg (2-lane highway)
5. S.R. 25 - 0.7 mile south of Americas (2-lane highway)
6. U.S. 41 - 1.0 mile north of Boswell (2-lane highway)

The data for this study were collected by using an Electromatic Radar Speed Meter. The meter was concealed as much as possible and was placed near the edge of the pavement. It was directed along the highway at a small angle with respect to the direction of traffic so that it was not necessary to make angle corrections to the readings.

The radar equipment used will not operate properly if the voltage varies more than minus  $1/2$  volt or plus 1 volt from the optimum twelve volts. The voltage was therefore checked periodically in the field and maintained within the desired range. Also, correct calibration was maintained by periodically checking it with a 60 mile per hour tuning fork.

The observers concealed themselves from traffic as much as local conditions permitted. It is thus believed that the speeds of the observed vehicles were not influenced by the observers or the equipment.



A summary of the results of this study, as well as of the last seven studies, is given in Table I. Indiana state law limits the speed of passenger cars and light trucks (those under 5,000 pounds GVW) to 55 miles per hour. The speed limit for trucks over 5,000 pounds GVW (heavy trucks) is 50 miles per hour on all highways except 4-lane highways which have a median strip of at least twenty feet in width where the speed limit is 55 miles per hour. This latter speed limit for trucks has been in effect since about May 1959. Most truck speed limit signs posted along state highways reflect this change and it is probable that most truck drivers are aware of this speed limit condition.

Truck speeds are shown in the tables for three groups: light trucks, heavy trucks, and all trucks. Speeds are also shown separately for 2-lane and 4-lane highways. All 4-lane observation stations were on highways with a median of greater than twenty feet. Since weights were not taken in this study, light trucks (less than 5,000 pounds) were considered to be only panel trucks and pickup trucks. All other types of trucks were classified as heavy (over 5,000 pounds).

The passenger car data were also classified into three groups: Indiana, out-of-state, and all passenger cars. The classification was determined by observing the license plate on each passenger car passing the observation stations.

A comparison between the results of the present study and those of the last previous study (August - September, 1960) is presented in Tables II through VII. Average and 95th percentile speeds were computed for each vehicle group from the sample of vehicles taken at each study site. All comparisons made are between the samples taken in this study and corresponding samples in August - September 1960.





The average speed for all passenger cars was 0.5 mile per hour faster than that obtained in the last study while average speeds for all trucks was 1.1 miles per hour lower than in August - September 1960. Indiana passenger cars had an average speed on 2-lane highways 1.0 mile per hour faster while their average on 4-lane highways decreased by 0.6 mile per hour. Out-of-state passenger cars increased their average speed on 2-lane highways as well as on 4-lane highways by 0.2 mile per hour.

The average speed for light trucks increased 0.7 mile per hour on 2-lane highways but decreased 0.8 mile per hour on 4-lane highways. For heavy trucks the average speed decreased by 0.6 mile per hour on 2-lane highways and 4.0 miles per hour on 4-lane highways.

The 85th percentile speed for all passenger cars increased 1.4 miles per hour.

Trend information on the average speeds of passenger cars and trucks and on the 85th percentile speed for passenger cars is shown in Table I and Figures 7 and 8. Table I is a summary of spot speed observations on Indiana highways for the last eight studies (since May 1957). This summary lists the observations for 2-lane highways, 4-lane highways, and all highways for both passenger cars and trucks.

Figure 7 is a graph showing rural speed trends from 1950-1961 for both passenger cars and trucks.

Figure 8 is a graph showing trends in percentile speeds and speed differential from 1955-1961 for both passenger cars and heavy trucks. The speed differential shown is the difference between the 85th percentile speed of passenger cars and the 15th percentile speed of heavy trucks.



TABLE I

SUMMARY OF SPOT SPEED OBSERVATION  
ON INDIANA HIGHWAYS  
(Free-Moving Vehicles on Level, Tangent Sections)

			Passenger Cars				Trucks		
			Ind Mean	Non-Ind Mean	All Mean	All 85 per	Light Mean	Heavy Mean	All Mean
<b>Two-Lane Highways</b>									
	May	'57	55.6	59.1	56.9	64.0	50.2	44.8	44.1
	Aug.	'57	55.5	56.7	55.9	62.1	51.7	45.8	47.3
	Aug.	'58	54.5	56.3	55.0	61.7	53.0	46.3	47.8
	Mar.	'59	55.5	57.7	56.1	61.9	50.4	45.4	46.1
	Aug.	'59	55.6	55.3	55.9	63.0	49.7	46.7	47.0
	Mar.	'60	55.3	54.8	53.7	61.8	48.5	45.9	46.4
	Sept.	'60	55.7	55.6	55.6	63.0	53.0	48.1	48.1
	Mar.	'61	55.7	56.4	56.6	63.9	50.7	47.5	49.1
<b>Four-Lane Highways</b>									
	May	'57	59.5	63.6	61.0	69.0	58.2	44.0	47.9
	Aug.	'57	57.5	59.5	58.5	64.8	50.0	44.8	47.4
	Aug.	'58	58.0	59.6	58.7	65.0	50.2	45.0	50.0
	Mar.	'59	58.2	61.7	59.0	64.9	50.0	47.0	48.6
	Aug.	'59	58.4	60.1	59.1	64.5	50.0	47.1	49.8
	Mar.	'60	58.1	58.2	58.1	64.0	52.4	47.3	48.4
	Sept.	'60	59.5	60.2	59.7	65.8	52.2	47.3	52.0
	Mar.	'61	58.9	61.0	59.8	65.7	50.0	47.3	48.9
<b>All Highways</b>									
	May	'57	57.2	60.1	58.3	66.0	50.9	45.3	44.6
	Aug.	'57	56.2	58.3	56.9	63.2	48.8	43.1	47.4
	Aug.	'58	55.7	57.9	56.5	63.1	50.4	45.3	46.7
	Mar.	'59	56.6	59.0	57.2	63.1	50.5	45.7	47.0
	Aug.	'59	56.5	58.1	57.1	63.5	50.6	47.8	48.6
	Mar.	'60	55.6	57.1	56.0	61.0	50.2	45.0	47.1
	Sept.	'60	57.5	57.6	57.1	63.7	53.7	48.4	50.3
	Mar.	'61	57.7	58.3	57.9	65.1	50.8	47.5	48.1





II

Station 1.0 mile south of south junction of SR 28 on US 52

**Surface** 4 lane divided - 24" Bituminous Concrete

**Weather Cool and clear**

### This Observation

Last Previous Observation (Speed Report No. 71 )

Date March 17, 1961

Date August 31, 1960

Time 2 - 3:40 p.m.; 4 - 5:20 p.m.

Time 1:50 - 4:45 p.m.

[illegible]



TABLE

III

SPEED DATA

Station 1.0 mile west of Klondike on U. S. 52

Surface 4 lane divided - 24' Portland Cement Concrete

This Observation

Weather Cool and Clear

Last Previous Observation (Speed Report No. 71)

Date April 4, 1961

Date August 30; September 2, 1960

Time 8 - 10:20 AM; 1:30 - 2:20 PM; 5 - 5:40 PM

Time 2 - 2:20 PM; 1:50 - 4:10 PM

OBSERVATION	PASSENGER CARS						TRUCKS						BUSES				
	All			Indiana			Non-Indiana			All			Less than 5000 pounds			5000 pounds or more	
	Last	Present		Last	Present		Last	Present		Last	Present		Last	Present		Last	Present
No. of Vehicles Obs.	544	532		344	356		200	176		113	170		30	49		83	121
Ave. Speed (m.p.h.)	59.1	58.9		58.6	58.2		60.0	60.2		52.4	49.4		53.4	51.9		51.9	48.4
45 m.p.h.	—	—		—	—		—	—		81.4	74.1		80.0	73.5		81.9	74.4
50 m.p.h.	94.7	91.2		93.3	88.2		97.0	97.2		69.0	52.4		73.3	55.0		67.5	51.2
55 m.p.h.	76.1	75.6		75.3	71.9		77.5	82.5		36.3	22.4		43.3	34.7		33.8	17.4
60 m.p.h.	50.0	50.2		47.4	48.0		54.5	54.5		16.8	6.5		33.3	18.4		10.9	1.7
65 m.p.h.	20.9	19.4		18.0	18.3		25.5	21.6		1.8	0.0		6.7	0.0		0.0	0.0
70 m.p.h.	6.2	6.6		4.9	5.9		8.0	8.0		0.0	0.0		0.0	0.0		0.0	0.0
75 m.p.h.	0.6	1.9		0.9	1.7		0.0	2.3		0.0	0.0		0.0	0.0		0.0	0.0
No. of Vehicles Obs.	302	257		191	184		111	73		63	104		14	24		54	80
Ave. Speed (m.p.h.)	60.2	61.0		59.7	60.1		61.2	63.2		53.7	50.4		50.2	53.3		54.6	49.5
Max. Speed (m.p.h.)	—	—		80	84		74	90		—	64		64	63		64	63
State or Type	—	—		—	—		—	—		—	—		—	—		—	—
Min. Speed (m.p.h.)	—	—		38	39		40	50		—	40		40	39		34	30
State or Type	—	—		—	—		—	—		—	—		—	—		—	—
No. of Vehicles Obs.	242	275		153	172		39	103		45	66		16	25		29	41
Ave. Speed (m.p.h.)	57.7	57.0		57.2	56.3		58.4	58.1		50.2	47.9		56.3	50.6		46.9	46.2
Max. Speed (m.p.h.)	—	—		74	71		72	74		—	—		63	64		56	56
State or Type	—	—		—	—		—	—		—	—		—	—		—	—
Min. Speed (m.p.h.)	—	—		40	38		42	43		—	—		32	40		26	26
State or Type	—	—		—	—		—	—		—	—		—	—		—	—





## SPEED DATA

Station 2.2 miles northwest of Templeton on U. S. 52

**Surface 2 lane - 22' Bituminous Concrete**

**This Observation**

Date March 31, 1961

Time 12:15 - 1:30 p.m.

Weather		Cool and cloudy	
Last Previous Observation (Speed Report No. 71 )			
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

Date September 1, 1960

Time 2 - 3:40 p.m.

[illegible]



A

Weather Cool, clear and windy

**This Observation**

Last Previous Observation (Speed Report No. 77)

Date September 6, 1960

Time 11:20 a.m. - 12:30 p.m.; 1:15 - 2:40 p.m.

[illegible]





## SPEED DATA

## Weather Cool and Clear

Last Previous Observation (Speed Report No. 71 )

Date September 2, 1960

9 - 11:30 AM

[illegible]



TABLE VII SPEED DATA

Station 1.0 mile north of Boswell on US 41

Surface 2 lane - 22' Portland Cement Concrete

Weather Cool and Cloudy

This Observation

Last Previous Observation (Speed Report No. 71)

Date March 31, 1961

Date September 1, 1960

Time 9:30 - 11:10 AM

Time 10:20 AM - 1:05 PM

PASSENGER CARS										TRUCKS						BUSES	
All										All						All	
Last Present										Last Present						Last Present	
292 343										109 52						36	
51.7 55.7										45.9 46.7						92 44.9	
45 m.p.h.										60.6 57.7						45.6 44.9	
50 m.p.h.										33.0 36.5						60.9 47.2	
55 m.p.h.										3.2 15.4						31.5 22.2	
60 m.p.h.										0.9 1.9						5.5 11.1	
65 m.p.h.										0.0 0.0						1.1 0.0	
70 m.p.h.										0.0 0.0						0.0 0.0	
75 m.p.h.										0.0 0.0						0.0 0.0	
No. of Vehicles Obs.										53 26						47 20	
Ave. Speed (m.p.h.)										44.9 46.3						44.9 45.1	
Max. Speed (m.p.h.)										72						60 57	
State or Type										-- --						-- --	
Min. Speed (m.p.h.)										32 40						32 36	
State or Type										-- --						-- --	
No. of Vehicles Obs.										92 150						45 16	
Ave. Speed (m.p.h.)										50.2 54.8						46.4 44.7	
Max. Speed (m.p.h.)										60 72						56 56	
State or Type										-- --						-- --	
Min. Speed (m.p.h.)										40 40						30 34	
State or Type										-- --						-- --	



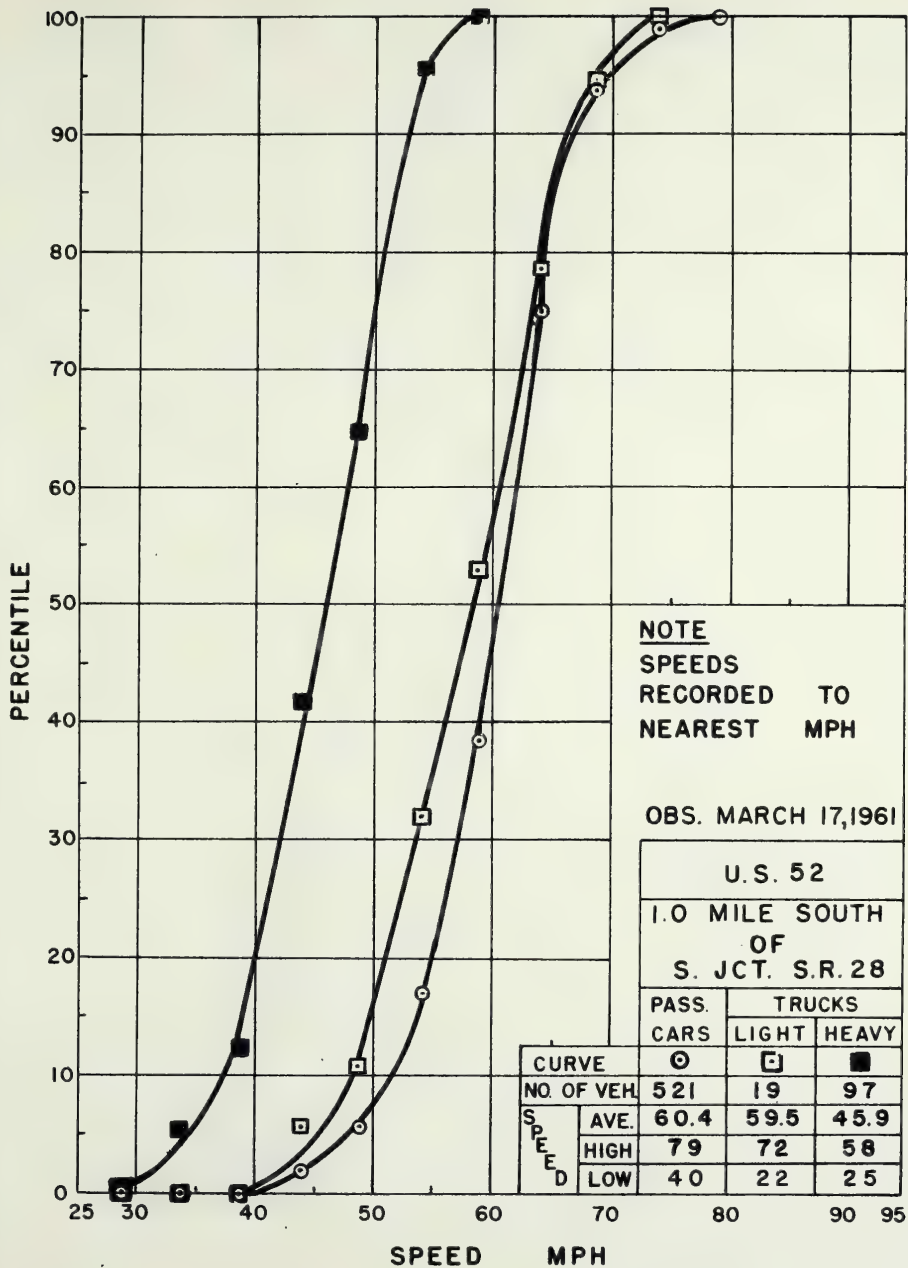


FIGURE 1





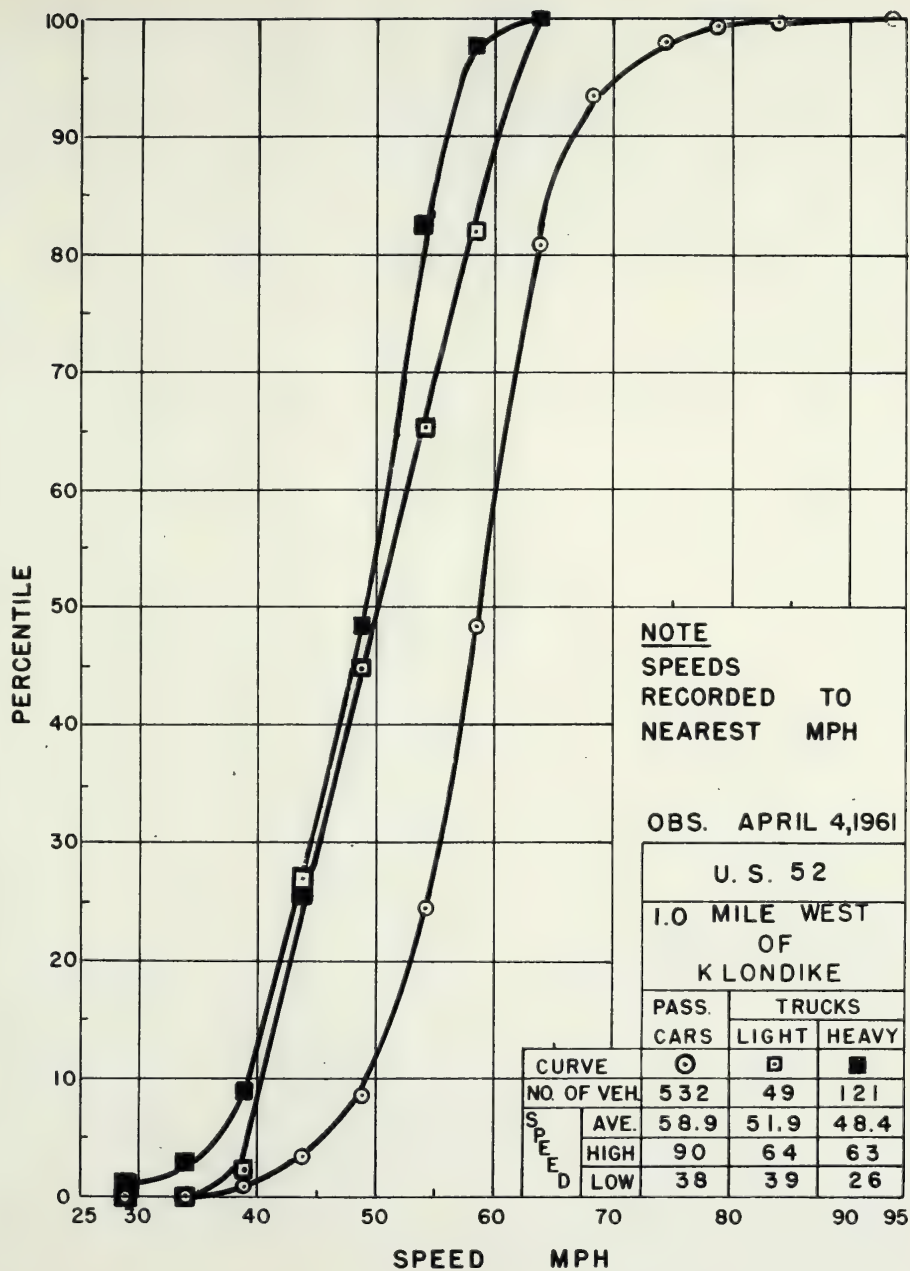


FIGURE 2



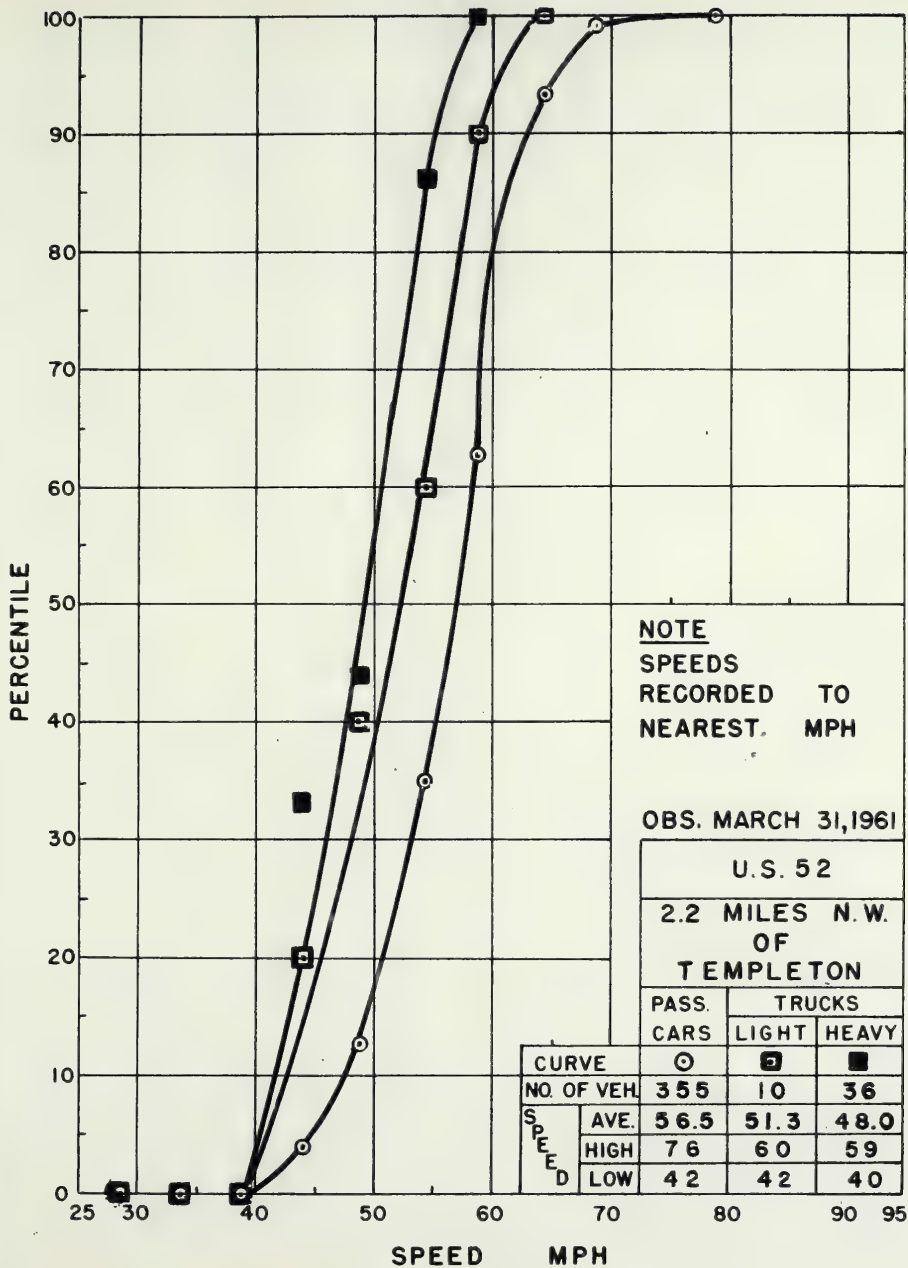


FIGURE 3





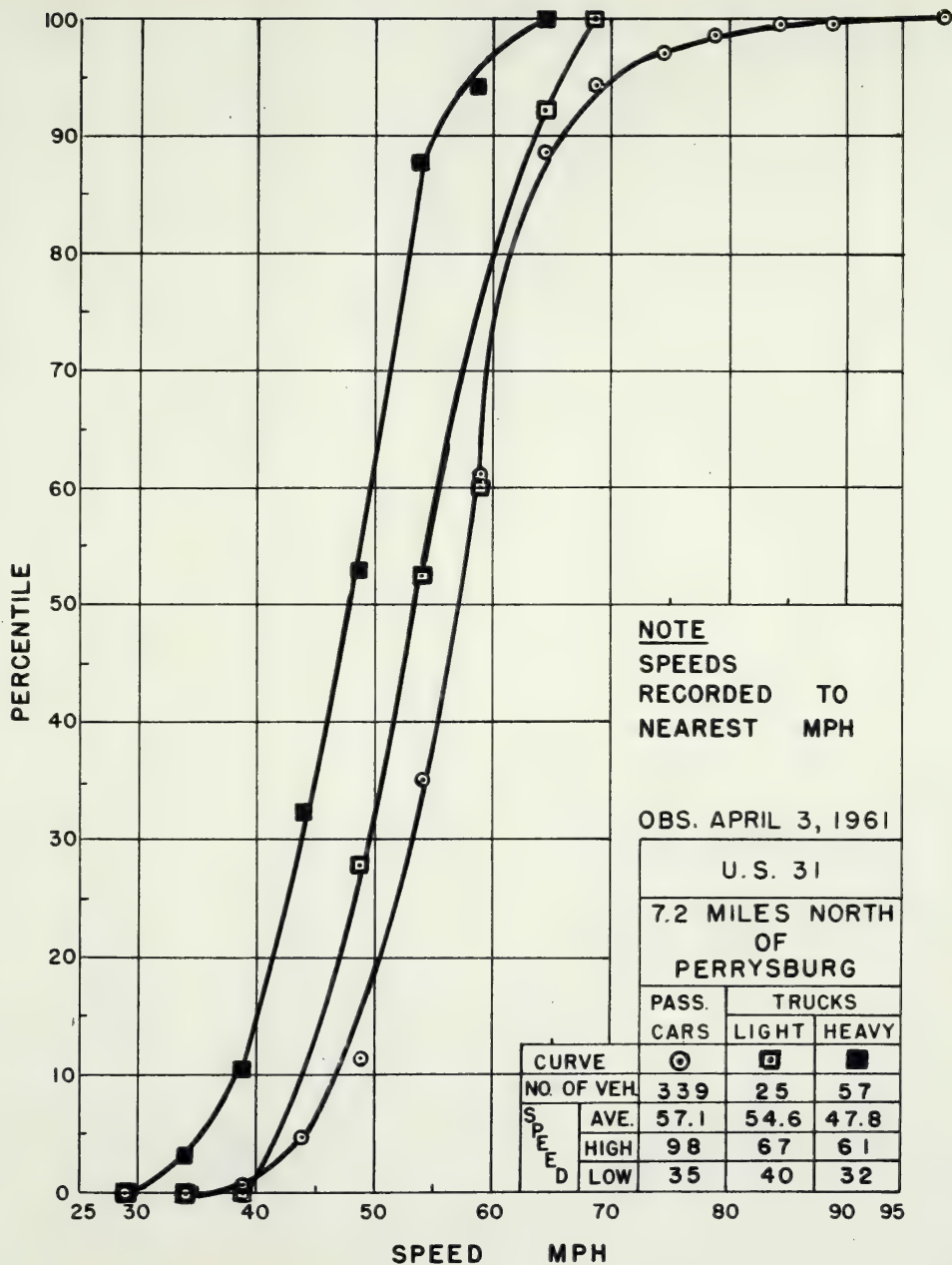


FIGURE 4



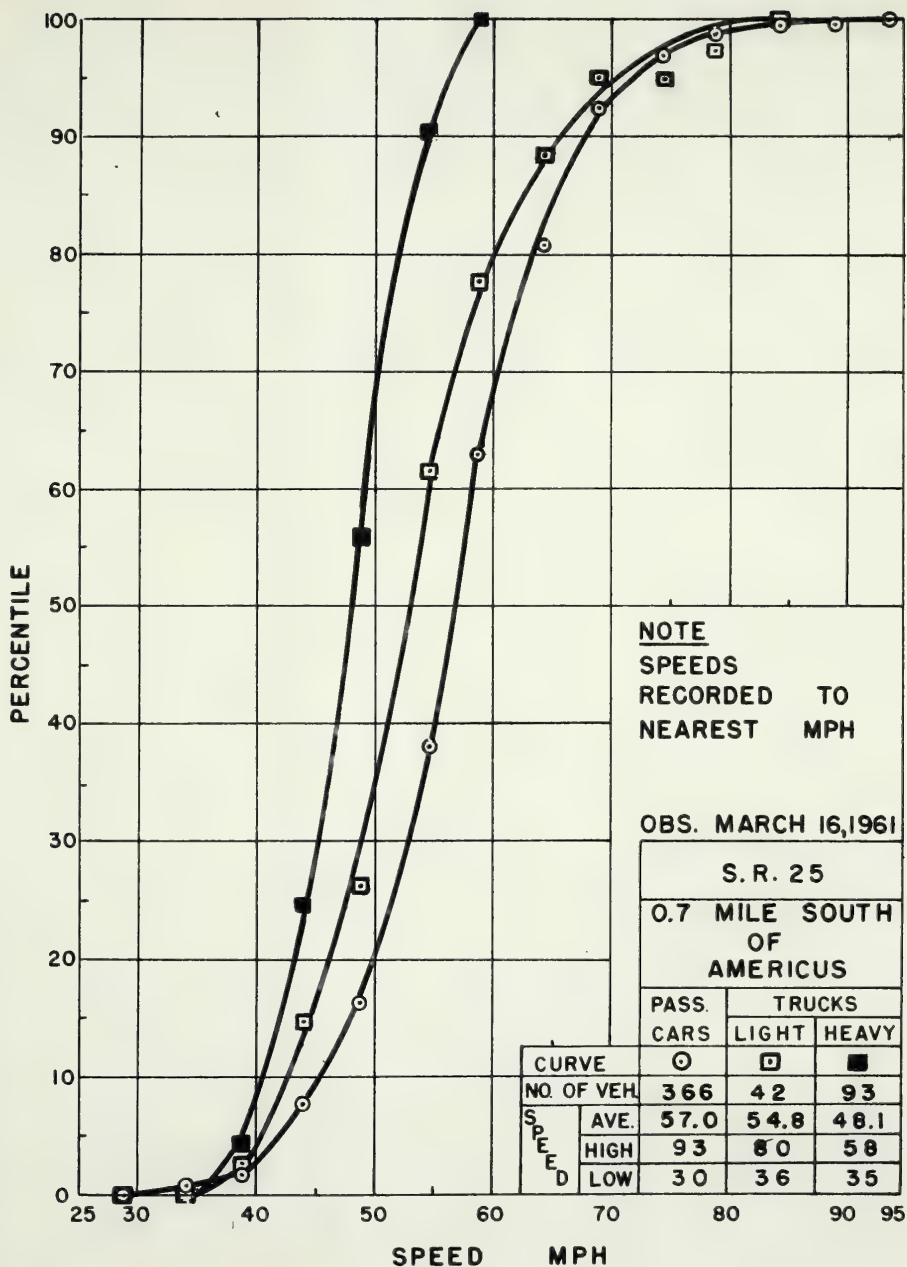


FIGURE 5



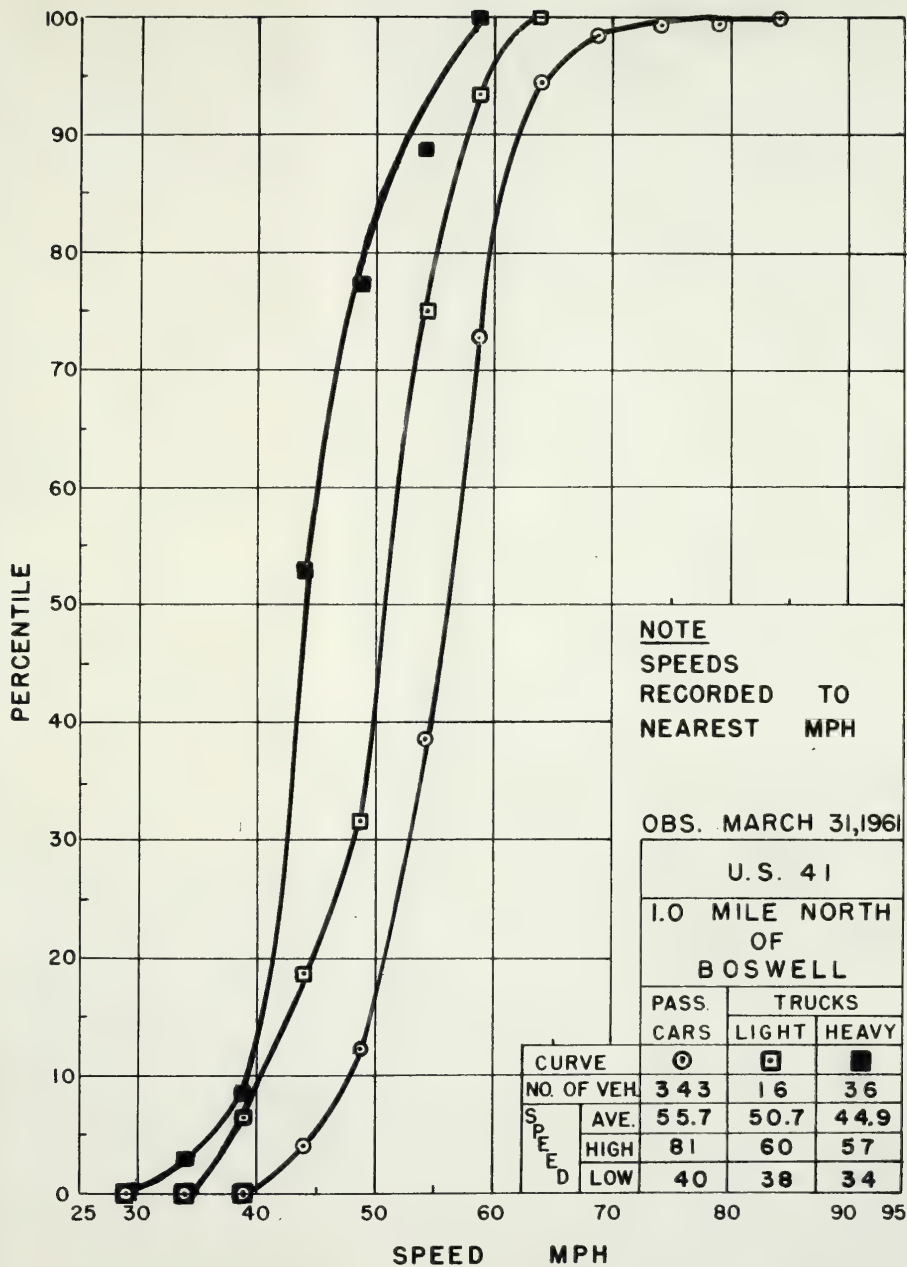


FIGURE 6





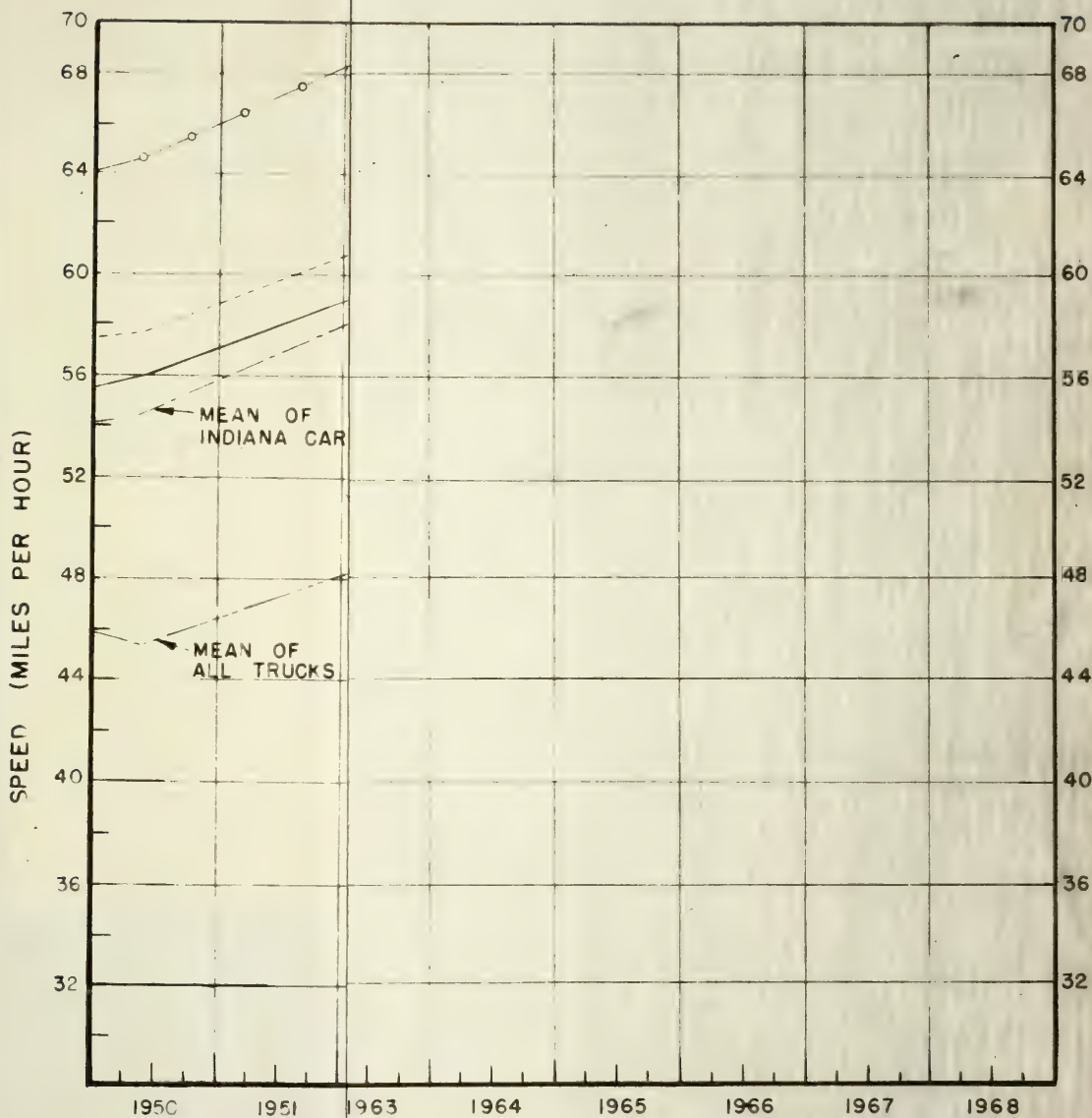
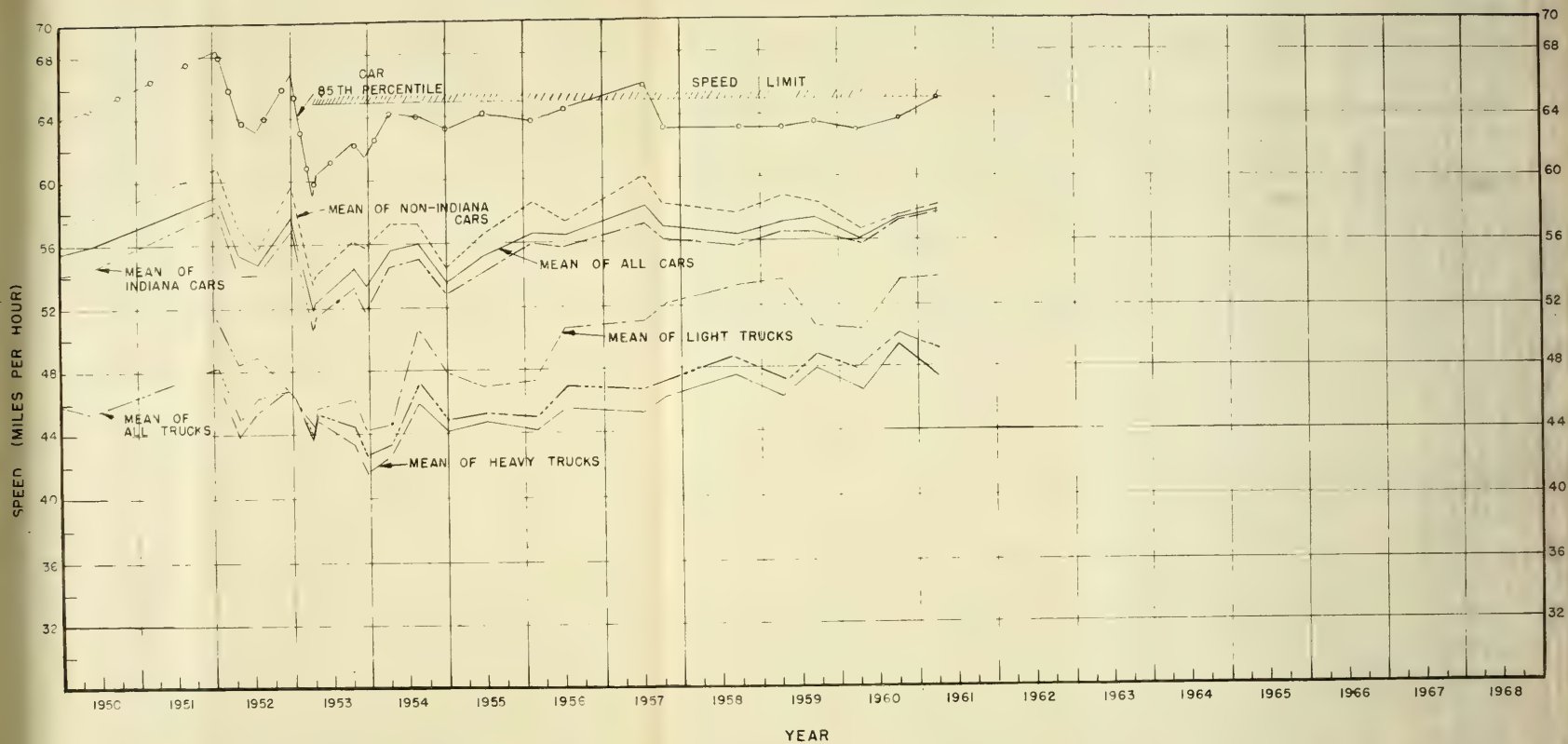


FIG. 7

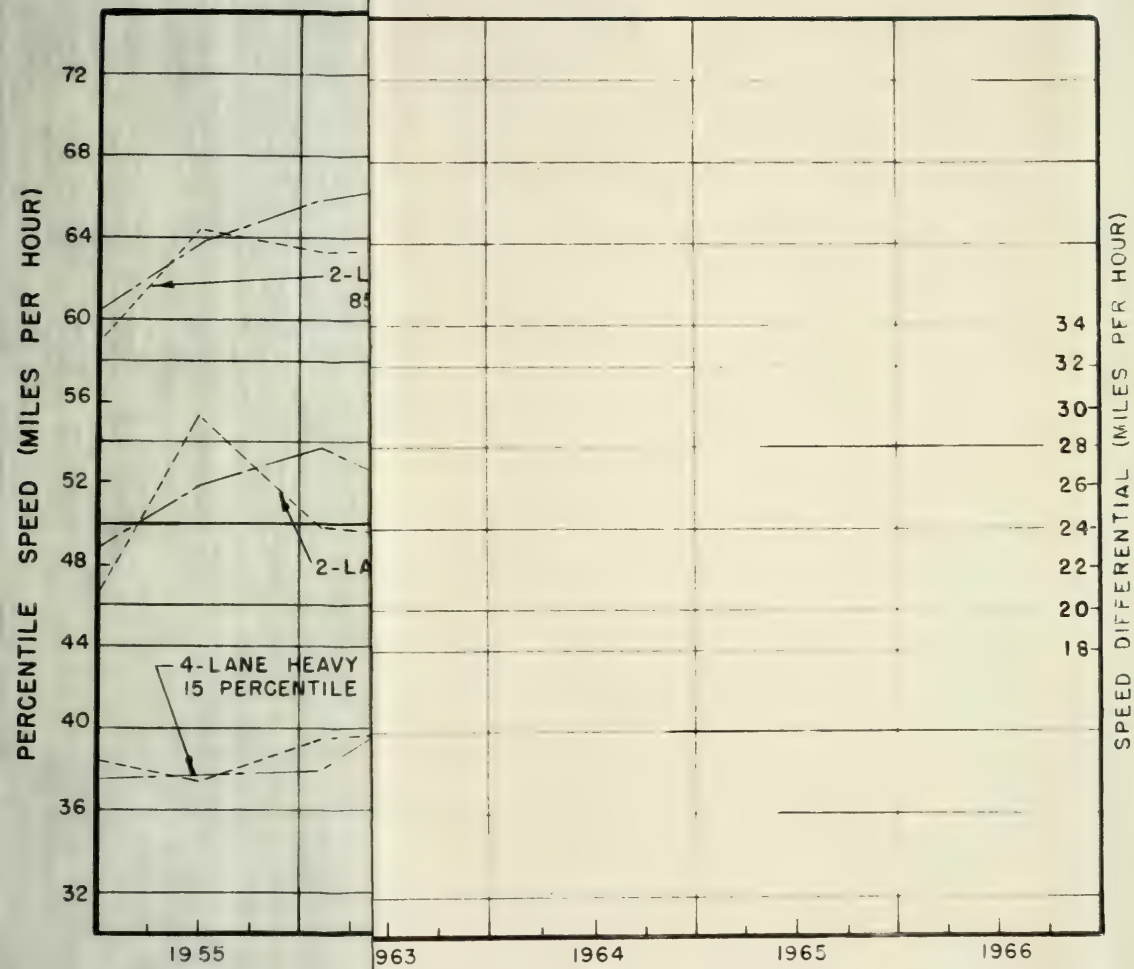




**INDIANA RURAL SPEED TRENDS 1950-1961**



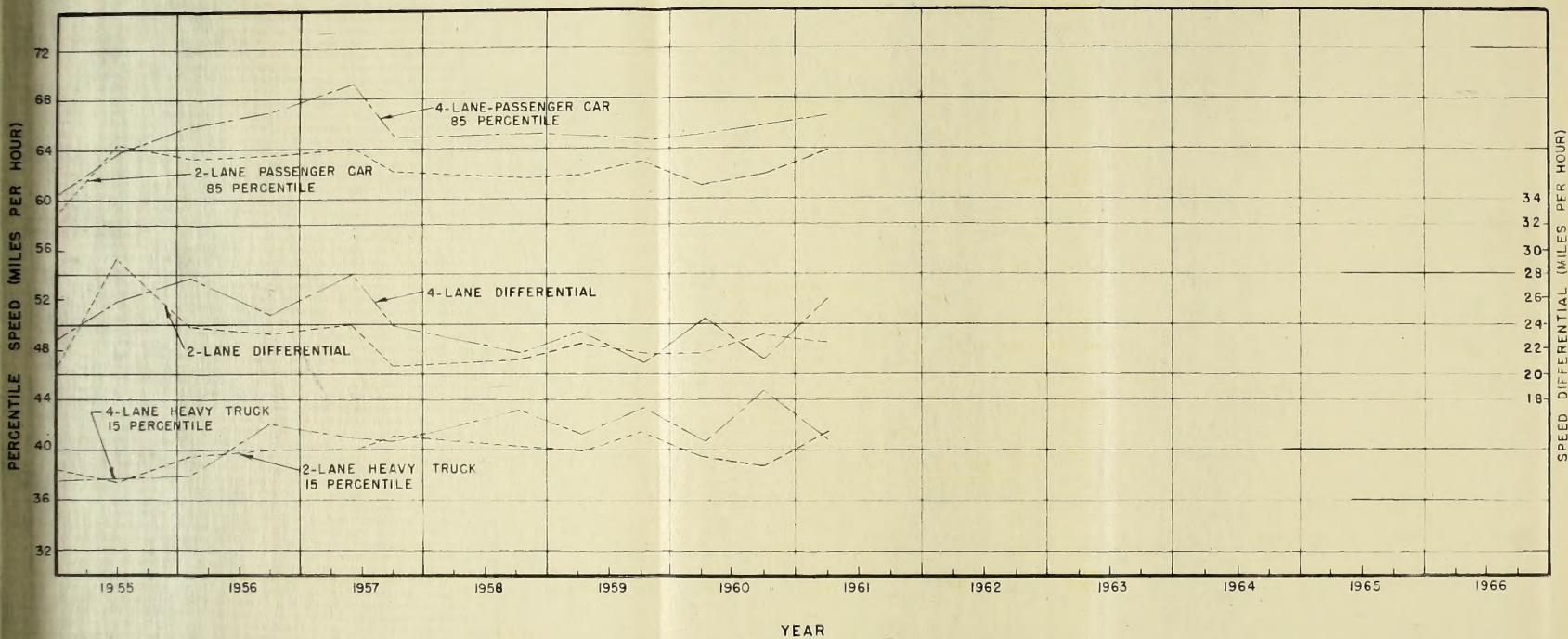




**1955-1961**

FIG. 8





**TRENDS IN PERCENTILE SPEED & SPEED DIFFERENTIAL 1955-1961**







